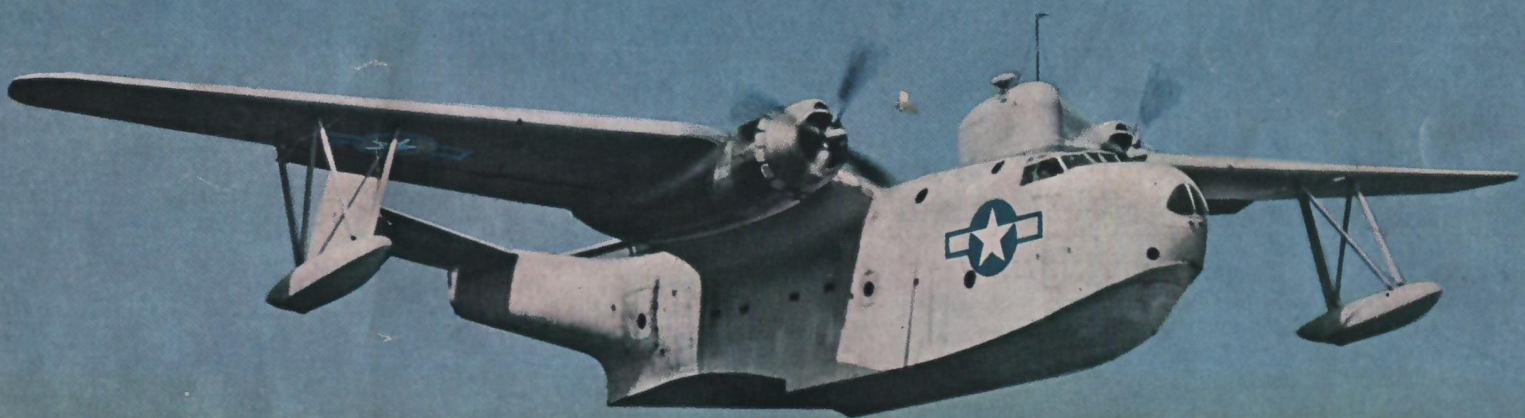
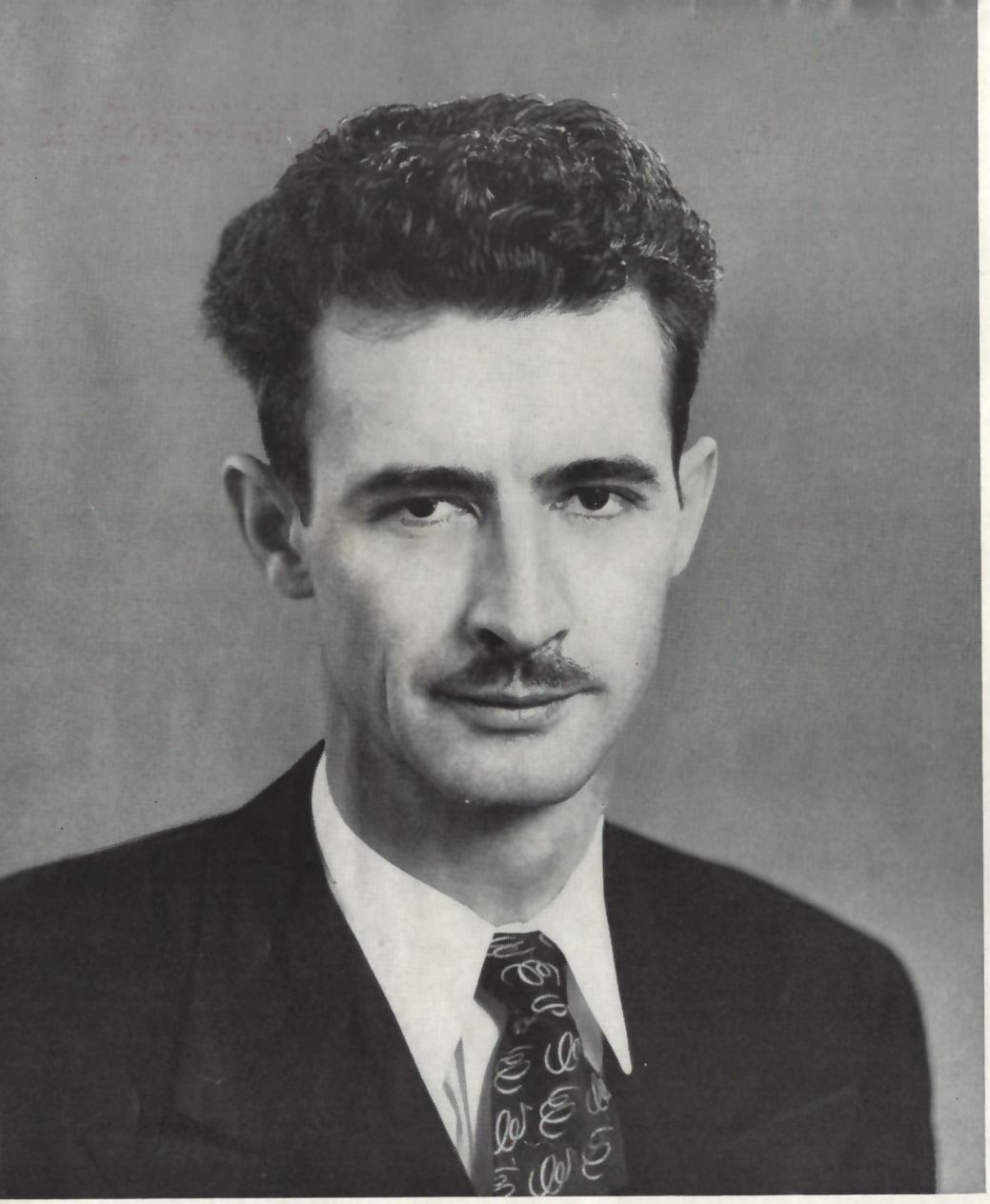
THE MARTIN STAR

January 1945



LIFE LINE



W. K. AIKEN

Outside Producer

AS a high school youngster he "mushed" behind a dog team and rode dancing, spinning logs through "white water" of swift streams of the Canadian North. Today—after years of manufacturing and engineering experience—he finds himself in a key spot in the American war effort. As manager of Outside Production at Martin-Nebraska, W. K. "Wally" Aiken is responsible for much of the outside production of the vast B-29 program. He must plan and follow-up the Martin-Nebraska program in conjunction with prime and sub-contractors throughout the nation. That's a job that takes a lot of "know how."

Born December 24, 1907 at Petrola, Ontario, he graduated from the University of Toronto with a degree in Industrial Engineering in 1929. His family—mother, father and a younger brother still live at the family home in Trenton. Another brother is superintendent of the branch plant of the Bristol Aircraft Corporation in Canada.

Descendant of a family of Scottish wagon makers, it was probably only natural that Wally would get into the manufacturing game sooner or later. While still in high school, he spent his summers and vacation periods in logging camps of the Canadian woods in the northern part of the Rice Lake District in Ontario. He did everything from cutting down trees and firing boilers to running logs down the swift Canadian rivers with a pike pole. While in the logging camps, some of his time was taken up with camp maintenance and he found that the experience he received in the rough-and-tumble game of the logging camp and saw mill was to serve him well in production problems of manufacturing later on.

Wally came to Omaha and Martin-Nebraska December 1, 1942, as assistant production manager. He became acquainted with the organization through his work in setting up manufacturing control on turrets that were being sub-contracted by the Crosley Corporation for The Glenn L. Martin Company in Baltimore. In March of 1943 he was advanced to production manager and when the B-29 program got under way he became manager of outside production in January, 1944. In this post he maintains offices in both Omaha and Detroit and spends considerable time visiting sub-contractors' plants and unravelling the many tangles that may occur in the building of one of the most complex pieces of machinery in the world—the B-29 Superfortress.

As head of the department that maintains graphic control on all production and technical data on the Martin-Nebraska B-29 program, his days are indeed busy ones. He manages all major sub-contractors' scheduled deliveries (going into each particular plant to aid in setting-up and following through deliveries) and has set up all outside control of the Superfortress program in order to insure deliveries to meet Martin-Nebraska requirements. The "goods" must arrive on time if Martin-Nebraska's "on schedule" record is to be maintained—and it's Outside Production's job to get them here.

He is also responsible for the Production requirement supply of vital B-29 parts manufactured at Martin-Nebraska to other prime contractors of the Superfortress program. Some of such major items as engine cowling, motor mounts and GFI machine parts for the pressurized nose section are made at Martin-Nebraska and sent out for assembly to other B-29 plants. Here again Outside Production and Wally Aiken are very much in the picture.

Wally began the practical side of engineering and manufacturing while still in high school. He got into the automobile industry with the Oakland Motor Car Company in Pontiac, Michigan in 1925, working part-time riveting and assembling motors. In 1926 he went with Chrysler in Detroit where he remained for the following 16 years. With Chrysler he did engineering experimental work for three years in the body division. He later became the superintendent in manufacturing and production control operating as an efficiency engineer in regard to mass production methods, conveyors, tools and fixtures.

Though his family is in Detroit, he spends about a third of his time in Omaha and the other portion in Detroit and travelling throughout the country on the B-29 program.

He still has a soft spot in his heart for the northwoods, the lumber-jacks, the saw-mills and the giant trees. He thinks the lumberjack is about as fine an individual as there is on earth—even though one tried, at one time, to drive a pick-axe between his shoulder blades before felled by a fellow worker.

His chief hobby and recreation—hockey—has gone "by the boards" the last few years but he still is interested in all sports, particularly those of football, cricket and ice-boating.

But, for the present, the northwods and sports are quite a way back in importance—Outside Production must go on without a hitch.

THE MARTIN STAR

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'Twixt Cup and Lip

"We are now suffering from the optimism of August, September and October, and the war is being prolonged on account of it."

These were the words of Lieut. Gen. Omar N. Bradley, commander of the Twelfth Army Group, a few days ago while his troops battered at the German wall. With the fortress of Germany ahead of him and winter closing in, Bradley realized that a hard road lay between his men and victory.

Over-optimism has been damaging, and the worst phases of it are felt at home, far from the din of battle. The slowing down of the flow of weapons and supplies has been tragic; may be more tragic as conclusive stages of the war are reached.

Let us be warned!

★ ★ ★

There's Reason To Be Proud

Every true craftsman take a tremendous pride in his work, the labor of his hands and mind, whether he be a painter, a musician, a printer or a stonemason. The old craft guilds were established not only to train apprentices in the various trades but to make those who earned their livelihood thereby proud of what they made.

All too often in a modern manufacturing plant such as Martin's, only a few of tens of thousands can have a part in the fabrication of the final product. It's mighty easy for the man or woman in Detail Manufacturing or sub-assembly to feel "let-down" once in a while. What they are doing seems to be so trivial as to be hardly worth the effort.

Yet it is upon the efforts of these thousands making parts and the smallest sub-assemblies that the operation and maintenance of the whole depends. What Marauders have done to the Axis has been blazoned in newspaper headlines for months. Medical supplies and mail reach Pacific outposts regularly and swiftly because PBM Mariners fly the routes on schedule in all kinds of weather.

Maybe shearing huge sheets of aluminum to prescribed sizes is not romantic; doubtless reaming holes or burring metal becomes monotonous, yet every time a headline reads, "Marauders Blast Cologne," every person who does even the smallest, seemingly unimportant task, can say pridefully and truthfully, "I helped write that headline."

A painting is strictly a one-man product; a bomber the product of thousands of hands just as skilled as those of a Rubens or a Rembrandt. Maybe your little part doesn't seem important, but a jig-saw puzzle looks mighty funny if all the parts are not there.

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More Plasma Needed

As the pace of the war grows in fury, as more and more American soldiers and sailors are being wounded, the need for more blood from which to make life-saving plasma grows by leaps and bounds.

The use of blood plasma is one of the outstanding developments of this war from a medical standpoint and the number of lives saved because of plasma would have been impossible a few short years ago. Fatalities from wounds have been at the lowest rate of any war—largely because of blood—your blood—injected into the veins of wounded soldiers.

Martineers can be justly proud of the blood they have given (scores are members of the Gallon Club), but just like airplanes and shells and ships and tanks, there is not enough to give a safe working margin.

One mighty good New Year's resolution to make and keep would be to donate a pint of blood to the Red Cross blood bank as frequently as possible.

January, 1945 Vol. III, No. 12

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Official U. S. Navy Photos

JET ASSISTED TAKE-OFF

Trailing twin plumes of white smoke, a Martin PBM Mariner makes a jet-assisted take-off at a South Pacific base. This remarkable series of pictures was made with a new power-driven K-25 camera, which makes 50 4x5-inch negatives in 22 seconds at a uniform speed without greater effort than pressing a button. Take-off time is reduced about one-half with jet assistance and the length of water run is similarly reduced. These pictures have received unusual publicity in newspapers and magazines.

Martin Company Gives $1,700,000 To Endow Aeronautical School

AN aeronautical research and educational school at the University of Maryland was made possible last month when The Glenn L. Martin Company made an initial gift of $1,700,000 to the College Park institution.

The grant provides for the establishment of one of the foremost schools of its kind in the world. Not only will it be available for post-graduate work by graduates of other engineering colleges, but plans call for a number of scholarships to be granted to the sons and daughters of Martin employees, that they may better equip themselves for important posts in the profession to which their parents have devoted their efforts. The basis upon which these scholarships are to be awarded will be announced later.

Approximately $1,500,000 of the initial gift, together with $750,000 which is expected to be added from State funds, will be used to construct facilities for the new department, according to Governor Herbert R. O'Conor of Maryland and Dr. H. C. Byrd, President of the University, who made a joint announcement of the Company's gift.

The remaining $200,000 of Martin funds will be used at the outset to endow the Glenn L. Martin Aeronautical Research Foundation. It is expected that during his lifetime Mr. Martin will make other contributions to the school and that provisions will be included in his will for the institution to receive a portion of his estate. The total is expected to reach several millions of dollars.

Dr. H. C. Byrd, President of the University of Maryland, accepts check from Glenn L. Martin which will establish a college of aeronautical education and research at the College Park campus

Mr. Martin explained the gift in these words:

"The erection of a plant, and the creation of a research foundation at the University of Maryland for education and research in aeronautics represents the fruition of thought of years as to how I could best permanently help the advancement of aviation and at the same time do something that would be of lasting value to humanity. Five things I should like to have the satisfaction of doing in my lifetime.

"First to contribute something of permanent value to aviation, to the development of which I have dedicated my life.

"Second, to play some humble part in bringing about a better understanding between nations, particularly between my own country and other countries.

"Third, to create an organization which, through education and research, will help raise the standards of living of people in all nations.

"Fourth, to carry to the four corners of the earth the doctrine of the worth of the individual, and through that doctrine, increase the respect of other nations for our way of life.

"Fifth, to give to outstanding young Americans and outstanding young men and women of foreign countries opportunities through education and research, to develop into the highest type of leaders in aviation, certain to be the greatest of industries, in order that they may make aviation the servant of all mankind.

"Beyond stating these objectives I doubt if there is anything more for me to say."

Tentative plans for the construction of facilities at the University are already well under way, according to Dr. Byrd, who revealed that he hopes research carried on at College Park will benefit industry generally.

"Mr. Martin has given to the University a remarkable challenge," Dr. Byrd said, "and we shall do our utmost to achieve the objectives he has outlined. Mr. Martin, in certain aspects of the project he is sponsoring, wishes us to cooperate closely with the State Department and with the United States Department of Commerce, and with any international aviation organization that may be set up by the Federal Government.

"The plans for graduate work and research will not interfere with the continuance of the undergraduate departments of civil, electrical, mechanical and chemical engineering. In fact, Mr. Martin's ideas, when put into effect, will strengthen these departments. Full-time research men, who will come to the university, will be in a position to give certain undergraduate courses."

"The gift for a new plant, with what the university will expend coordinating with the new project, its research in chemistry and physics, will provide for better and more adequate facilities than the university otherwise could have hoped for. In aeronautical engineering, the University of Maryland should become one of the world's great centers of education and research.

Open New Fields

"Such research, of course, will have effect not only in aviation, but in virtually all phases of industry. A new plastic, a new alloy of metals, for instance, will find application in many fields other than aviation.

"Our staff has already begun, with advice from engineers of the Martin company, and from Mr. Martin himself, plans for the project, and we have tentative plans available for architects not only for the aeronautical engineering units proper but also for the needs of the basic sciences of chemistry, physics and geology for industrial research.

"It is expected that Federal Government departments already on the campus —the Bureau of Mines, the United States Fisheries Technological Laboratory and the new Naval Research Laboratories to be constructed close to the campus, will co-operate closely in industrial research. Already preliminary conferences have been held with representatives of the Naval Research Laboratory for co-operative work.

In another statement issued at the time the initial gift was accepted, Governor O'Conor said:

"I do not know of any act on the part of one of the State's great corporations that could be more far-reaching or have greater potentialities for good.

(*Continued on page* 18)

Johnny Came Marching Home

Fighting the Japs on Corregidor, New Guinea and Saipan brought Johnny Pratt two Purple Hearts and the Silver Star, plus a discharge. But he's in there pitching at a war job he can do, helping his buddies still in the Pacific.

WITH a Silver Star and a pair of Purple Hearts pinned above his left breast pocket, Johnny Pratt recently came marching home, but he's still fighting the Japs, despite wounds in his shoulder and hips which caused his discharge after three years in the Southwest Pacific.

A native of Rockingham, N. C., Johnny is employed in the Field Department at the Martin Company. His right arm sometimes troubles him, but he is determined to help out his buddies still fighting in the Pacific, and a war job seemed to be the right answer when his discharge came through.

Those occasional twinges of pain remind Johnny of three years of almost incredible experiences at Corregidor, Lae on New Guinea and Saipan. The Star was his award for extraordinary courage in wiping out two Jap machine gun nests and killing nine of the Sons of Heaven in the first day's operation at Saipan.

Enlisted Before Draft

A good-looking lad of 18, Johnny enlisted six months before Selective Service was passed and was stationed at Schofield Barracks several months before December 7, 1941. He was then a staff sergeant and had a rifle platoon under his command, when a call for volunteers for the Philippines came up.

"They wouldn't release any of us sergeants. We were supposed to train new arrivals. But I wanted to get over and asked my C. O. for a bust in grade. Finally, he agreed and I was busted to corporal. Three weeks later, when we were in Australia, I was promoted again," Johnny said.

Johnny's outfit went into Corregidor in late December as replacements for the famed 37th Division. He fought in the major battle of Bataan and a number of minor engagements during the strategic withdrawals to Corregidor.

"Normally, we are supposed to get a hot meal every day. But the fighting was so heavy those four months on Bataan and Corregidor that we were getting but two hot meals a week and not always that. In fact, there were only nine days when we weren't in some kind of engagement.

"It was April 29, (1942), that 10 soldiers and one sailor were sent out in a motor launch to get supplies. We had been out a few days when a Jap plane discovered us and strafed the boat. Three of the men were killed and two wounded. I was one of the latter.

"I had just hopped overboard to escape the bullets and started swimming away when a machine-gun slug caught me in the shoulder. I was knocked out for the rest of the trip. Afterwards I learned that we had been out eight days when a hospital ship picked up the eight survivors. There were 26 holes in our boat, too, when we were rescued about 250 miles off the New Guinea coast," Johnny said.

Johnny Pratt

They were taken to Sydney. Johnny spent 22 weeks recuperating in a general hospital. He then went back into combat in New Guinea and assisted in the Lae operations. A shell landed nearby and caused shock—so it was back to the hospital. More recovery and training. Then Saipan—early last summer.

The first assault found his unit on the precarious beachhead. Not far away on several small bluffs were three Jap machine-gun nests. Three sergeants, including Sgt. Pratt, volunteered and each took three soldiers.

Led Volunteers

Sgt. Pratt took his trio of volunteers around the nest on the right flank, 200 yards up the beach. As they approached the target, one of the soldiers jumped to his feet and started running. The Japs got him. They got the other two soldiers.

"Sometimes inexperienced soldiers get panicky or try to do it all alone," Sgt. Pratt added. "I just dug down deep and then began to crawl toward the target after the firing stopped. I had three hand grenades, a .45 Colt and an M-1 30-calibre rifle."

Sgt. Pratt crawled 115 yards, tossed a grenade and wiped out the nest. Then he bayonetted the Japs to "make sure, for they're always pretending to be dead."

Other Japs rushed to the scene, and Sgt. Pratt retreated, firing a few shots to "discourage pursuit." When he returned to the command post, he discovered that the sergeant, who was assigned to take the left flank nest, had been killed. Sgt. Pratt took over and wiped it out with a grenade.

Two days later he was wounded when an enemy mortar shell landed 30 feet away. A fragment entered his hip. But he had won the Silver Star for the first day's activities and the Purple Heart for the third day.

Johnny was then sent home and honorably discharged. He had had all the fighting any one man should have to endure. Yet he returned to war production to contribute his share to the others who are still on the fronts. Johnny's record will be tough to match for any man.

★ ★ ★

Cook Books Head List Of Requests At Library

Cook books, three of them, still top the list of books most in demand at the Engineering Library, according to W. W. Hoffman, librarian. Other popular non-technical books are Etiquette, by Emily Post; Lincoln, His Life in Photographs, by Lorant; Garden Flowers in Color, by Foley; and two volumes of poetry by Ted Malone, Pack Up Your Troubles, and American Album of Poetry. Among technical books at the library, the most popular are Practical Mathematics, by Hobbs; The Technique of Building Personal Leadership, by Laird; Standard Handbook for Secretaries, by Hutchinson; and Practical Physics, By White.

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Longest Link

A year of operation without a fatal accident is the remarkable record chalked up for the Central African Division of the Air Transport Command, which has been flying the longest overland link in the supply route to China.

Despite the hazards of flight over jungles, deserts and treacherous coastlines, the African Division operates more planes than any domestic airline and on a "round-the-clock" schedule.

"LEEMAN'S DEMONS"

Official U. S. Navy Photo

A Mariner in VPB-202 gets a ground overhaul while another PBM flies over on patrol.

After doing patrol duty in the Atlantic, VPB-202 was transferred to the Pacific, first Navy "big boat" squadron to see duty against both Nazis and Japs. They flew Martin Mariners, of course, and the "Demons" sobriquet is well justified.

FIRST of the Navy's "big boat" squadrons to see combat duty against both the Nazis and Japs, VPB-202 has been returned to the United States and its members given leave for a well-earned rest. In the 10-month tour in the Pacific, the squadron flew 800 individual missions without a single cancellation.

The squadron, commanded by Commander R. W. Leeman, U.S.N., Manchester, New Hampshire, flew Martin Mariners. After patrol duty in the Atlantic, it was the first Navy Mariner squadron to operate in Pacific combat. Its Pacific itinerary, which covered more than a million miles of aerial flight, reads like a check-list of the United States' invasions of Japanese Pacific possessions.

Tarawa was the squadron's first combat stop. Then followed Majuro, Kwajalein, Eniwetok and Saipan. The outfit's last port of call, prior to its return home on leave, was the Philippines. The squadron log includes missions that range all the way from hum-drum patrols and Dumbo hops to hazardous strikes against heavily-fortified enemy bases and shipping.

One of the "Demons," ("Leeman's Demons" was the squadron's combat nickname) piloted by Lieutenant Robert J. Hunt, U.S.N.R., Trenton, New Jersey, was the first Mariner ever to raid Japanese territory. It attacked the Taroa airstrip on Maloelap Island in the Marshalls last January.

"The idea was to keep the Japs awake," said Lieutenant Hunt. "We'd go in at night on a hop like that and make four of five dummy runs before finally dropping our bombs on the runway."

Commander Leeman described two of the squadron's most unusual missions: "Dumbo" rescue service and mail runs to islands on which American troops had made amphibious landings shortly before.

"Most of our Dumbo work", he said, "was uneventful. We merely flew around enemy targets while Army planes bombed them. Most of the time we couldn't see the bombers through the cloud cover—but the bombs occasionally passed our planes on their way down.

"Our toughest mail run was to Saipan. We had to operate from the open sea, for the harbors hadn't been cleared when we first went in. We'd lie off the beach at 3,000 yards and watch the Jap shore batteries blazing away at us. We never were hit."

Among VPB-202 pilots credited with successful attacks on enemy shipping are Lieutenant W. H. Huff, U.S.N.R., Long Beach, California, and Lieutenant (jg) A. J. Caffarel, U.S.N.R., Dallas, Texas.

The squadron's executive officer, Lieu-

(*Continued on page* 17)

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Lake Take-Off

A PBM Mariner recently forced down in a small New Mexico mountain lake is back with the fleet none the worse for its experience, thanks to JATO.

The big flying boat was forced down in the small landlocked lake by a loose cowling while on a ferry flight from Norfolk. With a maximum length of 3,080 *feet, the lake was barely long enough for the landing—far too short to take-off, particularly from smooth, fresh water and at an altitude of* 4,000 *feet.*

A crew was dispatched from San Diego to install four of the new Jato units, two on either side of the fuselage just forward of the waist gun hatches. Two rockets were fired as soon as the power was applied, the other two about 4 *seconds later. With this added thrust the big patrol bomber roared up into the air after a run of only* 2,100 *feet.*

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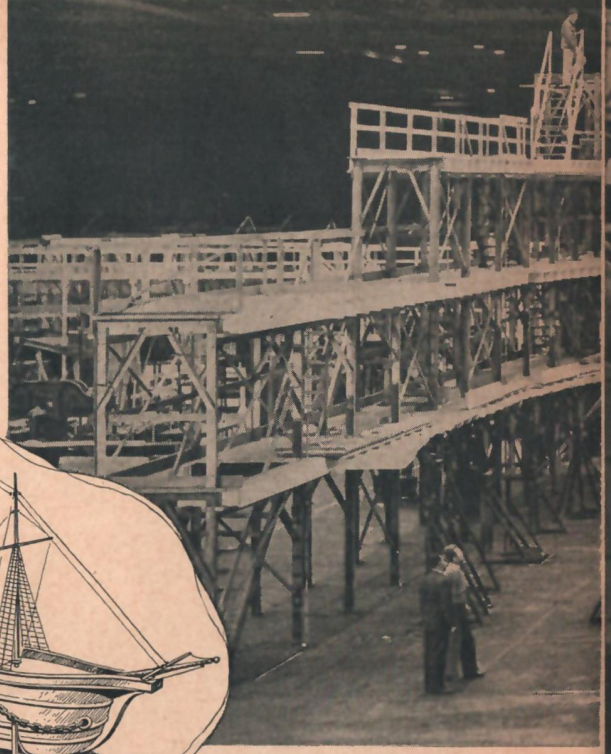
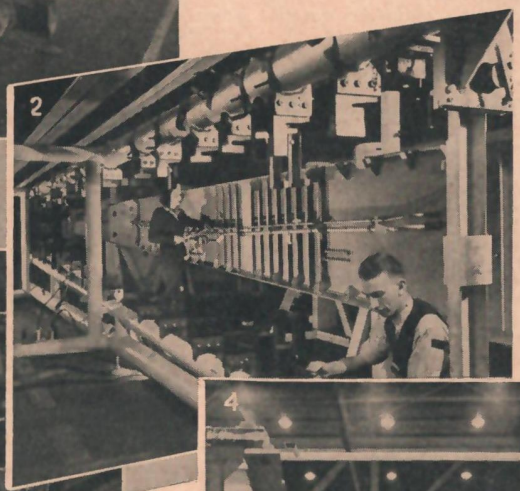
BIRTHPLACE OF GIANTS



In the drawing at right, the JRM Mars and the Santa Maria, in which Columbus sailed to America in 1492, are drawn to the same scale, as are the human figures. Were the Santa Maria not of such broad beam, it could readily be built in one of the Mars' hull fixtures shown at the upper right. The only trouble would be in stepping the masts. The roof of B Building is too low to do that.

The three hull fixtures in B Building in which 20 JRM Mars flying boats will be built for the U. S. Navy. Fixture at right is almost completed, one in center

AS the date for the laying of the keel of the first of 20 JMR Mars flying boats being built by The Glenn L. Martin Company for the U. S. Navy approaches, activity increases in B Building, where work on sub-assemblies is already well advanced. The pictures on these pages attempt to portray, at least partially, the tremendous size, not only of the ships themselves, but of the various fixtures required to build the sub-assemblies. Almost the entire floor space in B Building is now devoted to work on the Mars ships.

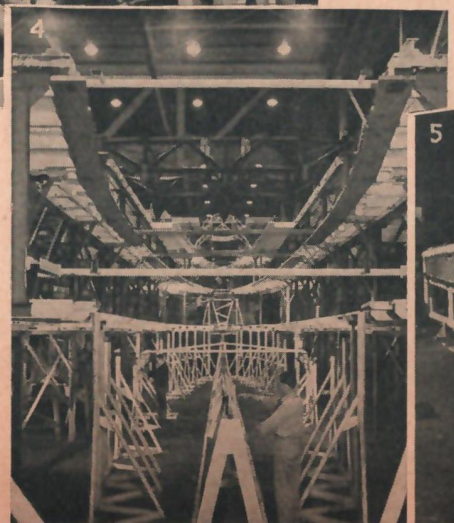


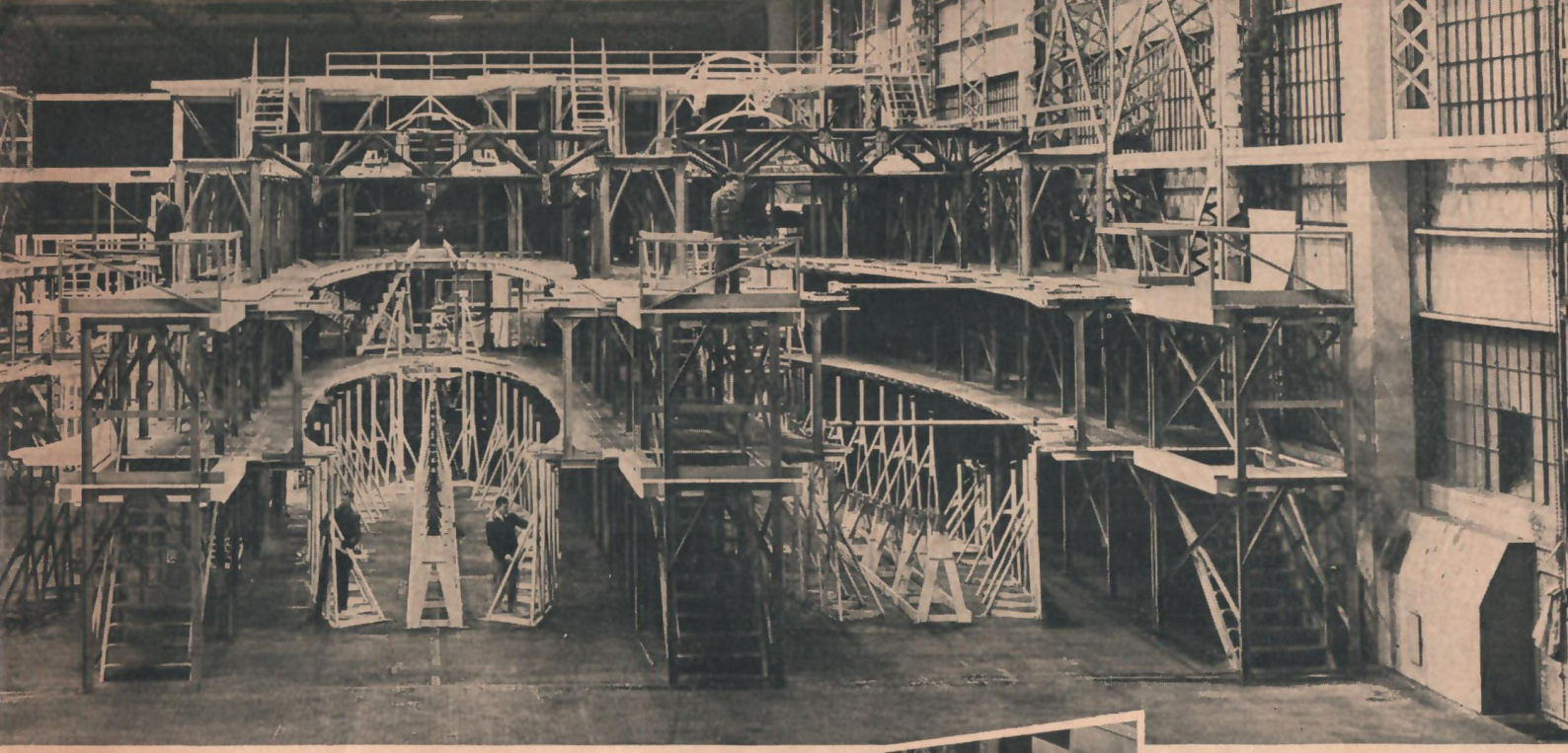
1 Tooling engineers set up temporary forms to make de-icer drill jigs for the outer wing leading edge. The outer wing is 58 feet, 4 inches long.

2 Fitting de-icer lines on the outer wing front spar. This fixture is 55 feet, 10 inches long. Steel pipes at bottom are 8 inches in diameter, those at top 6 inches.

3 Almost lost in the forest of pipes in first position, center wing assembly fixture, are these two tool engineers studying their blueprints.

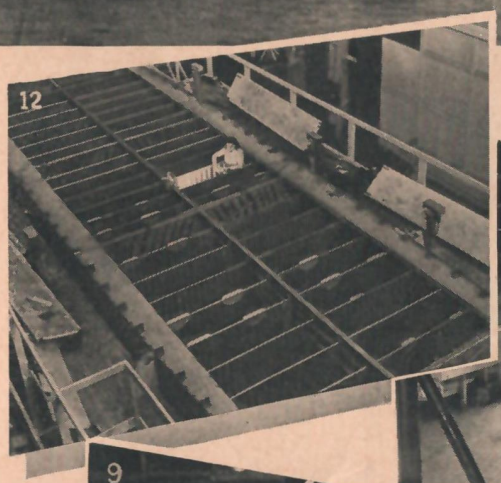
4 Looking up and aft into one of the three hull fixtures. Inverted "U" in foreground is keel locator. Towering above are the chine locators, contour boards and at extreme top center wing and stabilizer locators.





nearly so, while considerable work is still required on one at left. Each fixture has five working levels, is 130 feet long, 29 feet, 4 inches high and 29 feet, 6 inches in width. Human figures in the picture give some idea of the tremendous size of the "tools."

Photos by Lee Dougherty and Ed Eisenmeier



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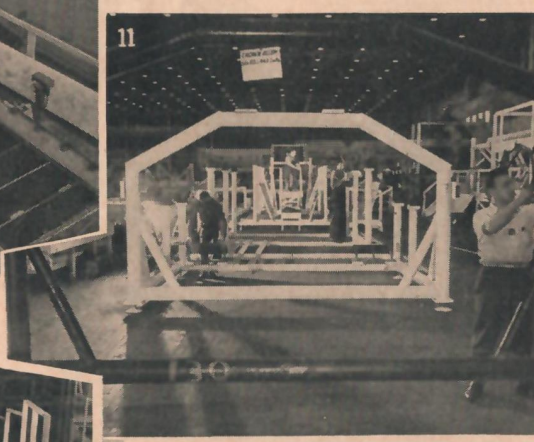

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5 An outer wing front spar in its fixture. This is the first position.

6 Partially completed center wing leading edge. This assembly is made in three sections, of which this one is 27 feet long. Crew members will be able to crawl through this edge to service engines in flight.

7 Looking down into one of the hull fixtures, which is big enough to hold a mine sweeper.

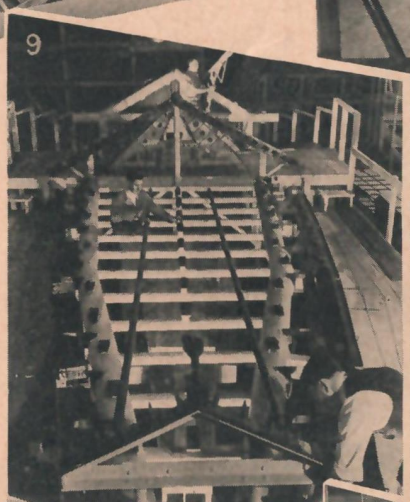
8 View of part of B Building floor from the fourth level of one of the hull fixtures. In foreground is tank section and in background the two-story arbors in which bulkheads, floors and floor frames are assembled.

9 Aft bottom panels, each of which is 20 feet long, are built upside down.

10 Outer wing spar fixture holds both right and left wing spars, doing double duty. It is 13½ feet to the first crossbar.

11 Erecting crown assembly fixtures for the Mars.

12 Main tank section, with a capacity of more than a tank carload of gasoline. Bulkheads are built in arbor fixture, then assembled upside down, complete with skin, before being rolled over into position shown here.



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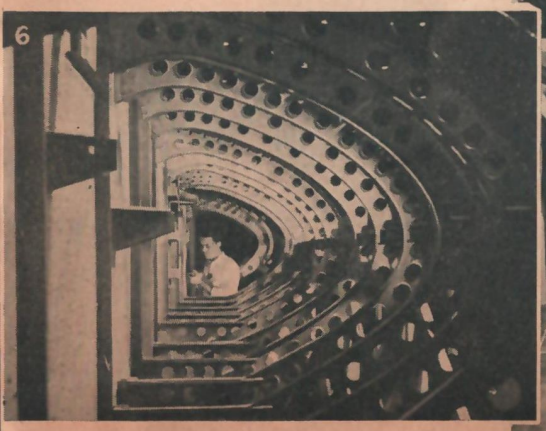

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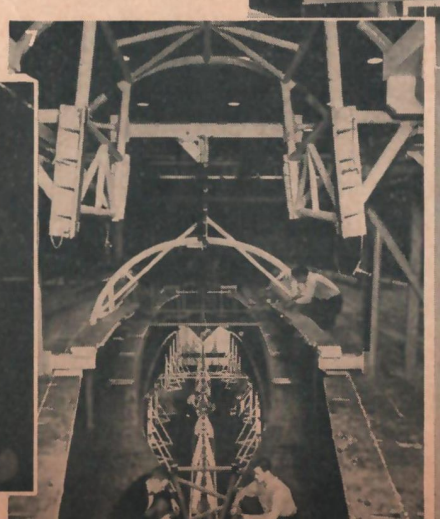

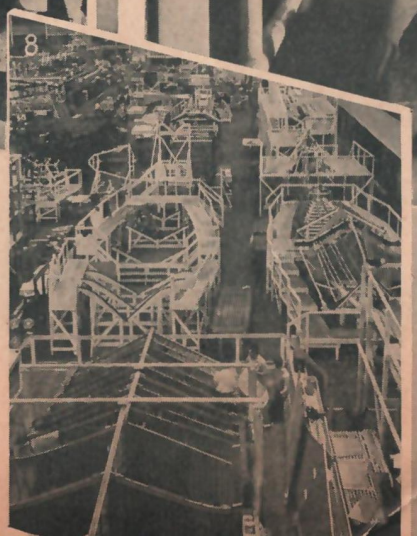

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Vay Caesar, Protection

Garnett Wells, Mail Room

Wanda Beck, A

MARTIN WO

Smartly

Dottie Gilpin, Inspection

Rita Morton, Final Assembly

Margaret Moran, Purchasing

Gay Nelsen,

AAF Inspection

Minnie Villadsen, Cafeteria

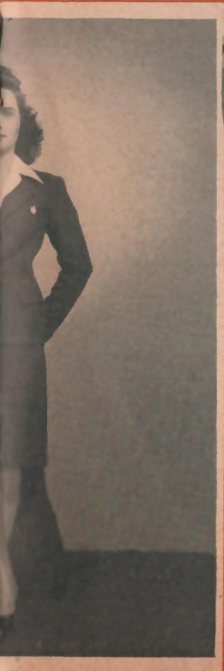
Lucille Phillips, Sub-Assembly

omen DRESS

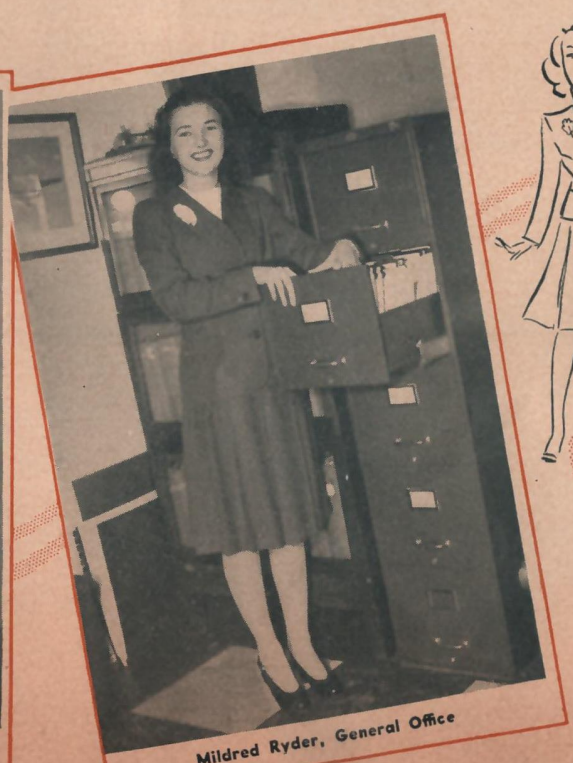
From the "girl next door" who wrapped a bandanna around her hair, put on a pair of slacks, then picked up a rivet gun, to the "A" girl in typing class who now types letters "Our Company is deliverng B-29s on schedule," Martin-Nebraska women are following the American tradition—helping out where they are needed.

But even on the job they maintain that poise and charm in appearance and dress that is as American as apple pie.

Evelyn Emery, Medical



Personnel



Mildred Ryder, General Office

Florence Fischer, Transportation

CONVEYOR SYSTEM speeds Production of SUPER FORTS

TYPICAL of the highly mechanized industry which is part of America's leadership in peacetime and invincible strength in wartime is the world's longest aircraft conveyor system now being used in the manufacture of B-29 Superfortresses at The Glenn L. Martin-Nebraska Company, Omaha.

The conveyor, similar to those which helped to develop the low-priced automobile in America, moves forward at a constant speed, every minute bringing a score or more B-29s a fraction of an inch closer to their ultimate goal of bombing Japan.

Although the speed of the line is slow, almost imperceptible, it is responsible in part for continuing the company's record of being on schedule every month for two years.

For security reasons, the actual number of airplanes on the conveyor line cannot be published, but the weight of the total number of planes being moved down the lines can be said to exceed 500 tons. Most of this great weight is supported by the planes' landing gear, the friction load on the conveyors being between three and six tons. However, this heavy friction load is pulled along by electric motors of only one horsepower or less which are used to power a gear drive mechanism.

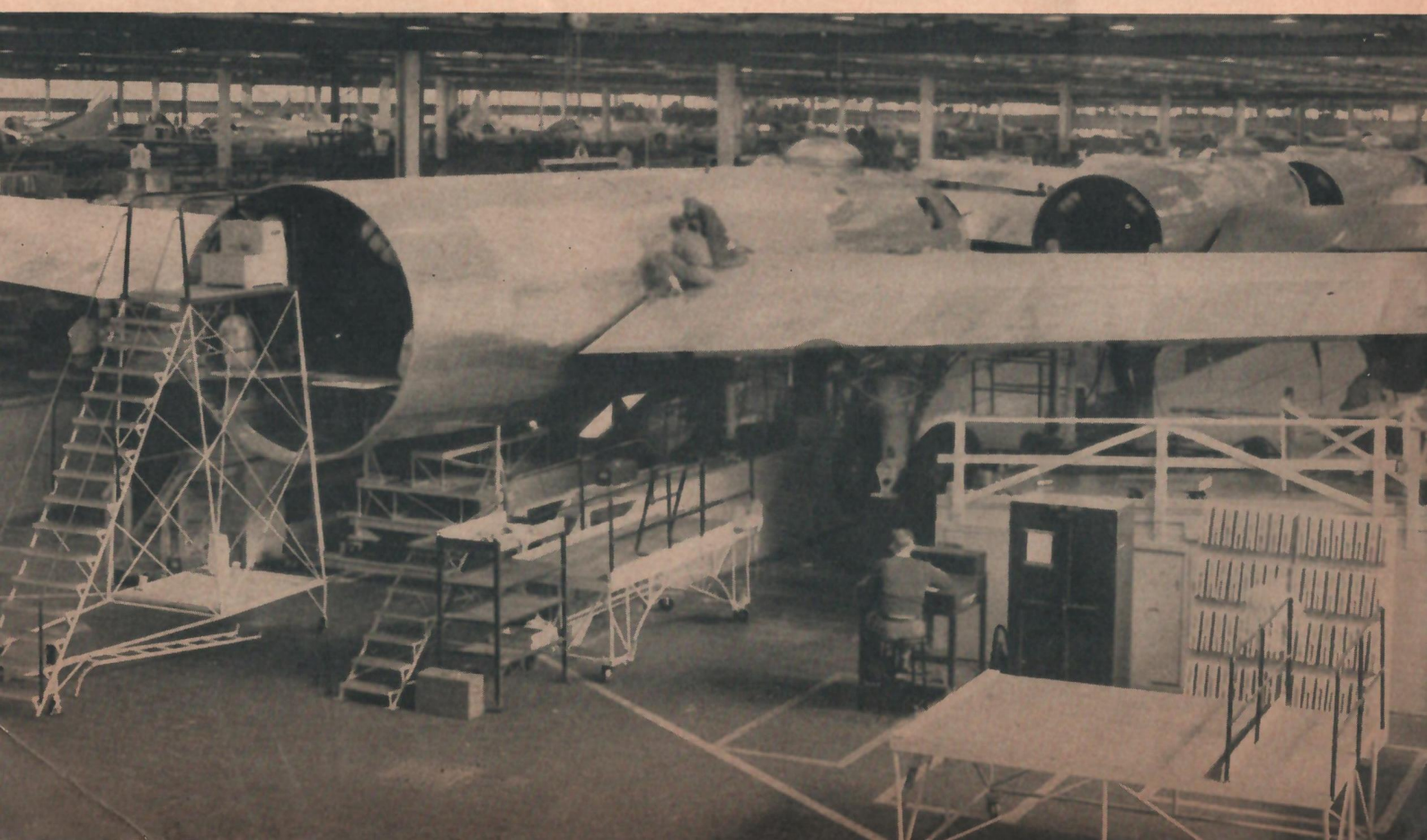
Principal components of the conveyor are twin chains which glide over the floor in steel channels. A tow bar, spanning the chains, is attached to a strut which, in turn, is fastened to the plane's nose wheel gear. Steel "dogs" engage the tow bar to the chains.

Easy access to the working surfaces of planes is made possible by platforms which extend the full length of the line. Outlets for two types of electric current are provided by trolleys which slide along tracks attached to the conveyor.

The system is controlled with electric switches which are locked in operating position and a series of light signals indicate whether or not the line is moving.

The giant center wing, which is made in the annex adjacent to the main building, is moved over the separating wall to the first position on the assembly line where it is spliced to the center section of the plane. The latter, as well as the nose and several other sections, are partially made by sub-contractors in various cities throughout the country.

As the Superfort moves down the as-



The first position on the assembly line where the great center wing is attached to the center section of the plane, the main landing gear is installed and numerous preparations are made for the positions which follow.

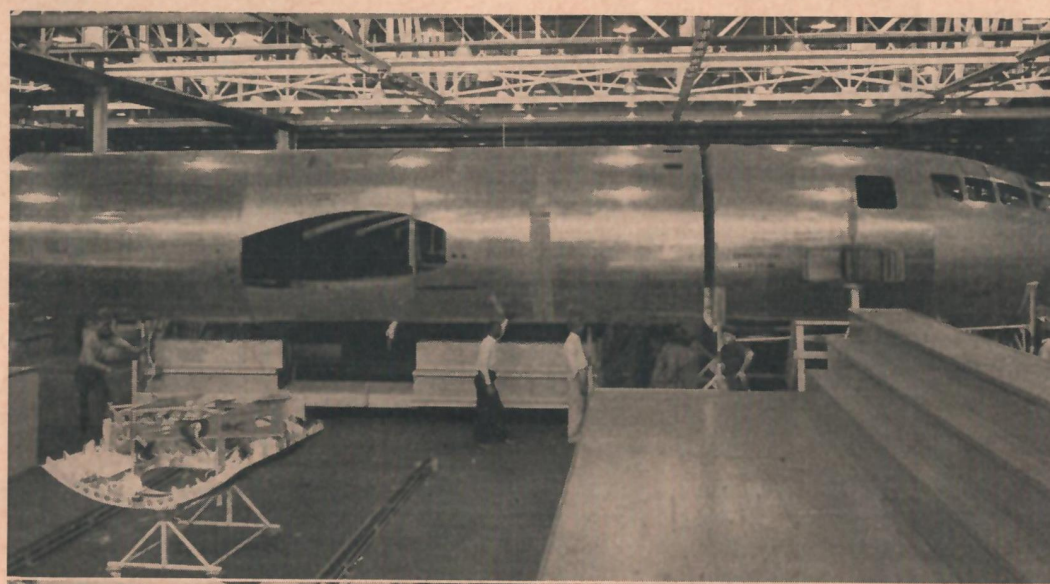
Looking down the assembly line as the plane nears completion. The propellers and the wing's leading edges are not yet installed. The platforms at either side provide easy access to upper portions of the plane.

sembly line, workers install the four great 2,200-horsepower engines, the wing flaps, ailerons and other controls, and the thousand-and-one complex instruments which help to make the B-29 the world's greatest bomber.

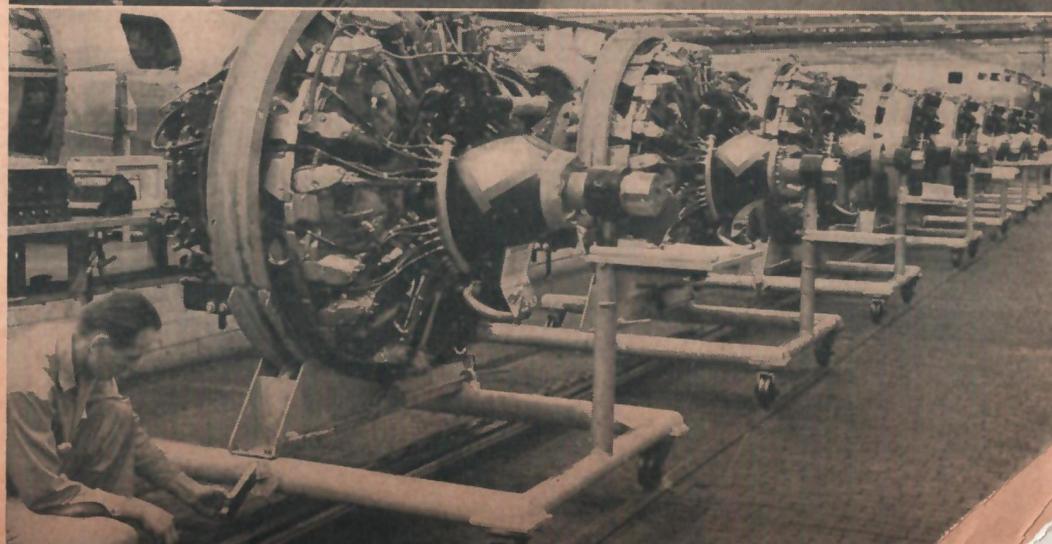
At the end of the first assembly section, each plane is moved to a turntable. There, it is turned to face in the opposite direction so that it can continue on the second part of the assembly line.

On the final line, the giant 16½-foot propellers, the largest ever installed on an airplane, are set, the guns are adjusted and the plane is inspected before moving it outside of the factory for engine tests and flight.

Small conveyor systems, identical to the large lines except for length, are used during the assembly of tails, engines and other incomplete units of the plane.



At Right Above—The center fuselage section and nose, both of which are partially completed at other manufacturing plants are spliced, as shown. Part of the chain drive for the conveyor system can be seen in the foreground.



At Right Below—The 2,200 horsepower Wright engines are prepared for installation on a conveyor line similar to the larger main assembly line. An employee inserts a steel "dog" into the moving chain.

Audio-Visual Aids Teach Faster, Better

"One look is worth a thousand listens," —and Martin-Nebraska's training records are proving it.

The time element in this war has been responsible for the development of a new form of education...the audio-visual program—the use of instructional aids ranging from sound films to actual materials and parts. Educators had already experimented with the idea that *to see is to learn*, but it was the military authorities who, faced with the need of training millions of fighting men rapidly and well, adopted the idea, put it in action on full scale, and proved its unbelievable utility.

The American people are not slow to "catch on" to a good thing, especially one that has been proven good by such an authority as our armed forces. Industry, also faced with an untrained army of war workers, has adopted the- audio visual system to induct and train them the G.I. way. Every large and progressive factory has or plans to have a projection room to supplement its educational program.

Movies and Slides Used

At the Martin-Nebraska Company, motion pictures and slides have been shown intermittently in conjunction with the training program since it was first inaugurated. Little by little the facilities at hand came into popular use as their value was seen and understood, until a need was felt for a more permanent and suitable place for the equipment and the growing library of films. The Company, recognizing the importance of the program, has furnished a real projection room so that audio-visual aids can be used to their fullest advantage in combination with classroom instruction. The new projection room, seating about 100, was completed recently in Modification Building "A." Here in a sound-proofed, air-conditioned and well lighted room, with excellent dual projection equipment and acoustic control, the supervisor or instructor can bring his group for training or re-instruction along the audio-visual lines. The new employee is fitted into the organization quickly and "the old-timer" is kept up-to-date on new procedures through the medium of audio-visual.

Flexible Program

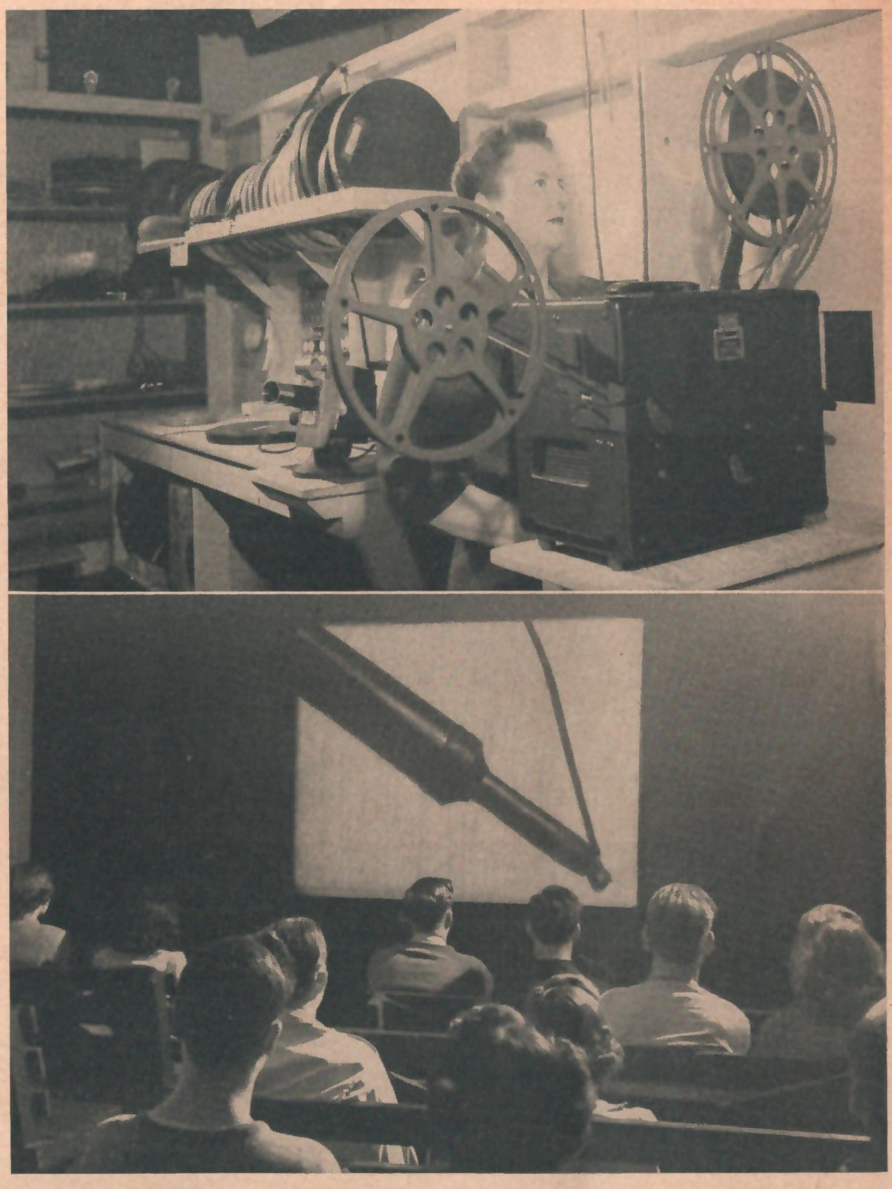
At present the program is flexible. Rivet school trainees come every day of their three-week course to view films that tie in with their instruction program. Blueprint students are helped to visualize the object drawn on the blueprint through the medium of the film, *Behind the Shop Drawing*. The supervisory training program incorporates the facilities at hand to direct the supervisor in such sujects as *Instructing the Worker on the Job* and *Proper Placement of the Worker*.

The Air Corps and the Signal Corps are incorporating the departmental audio-visual facilities in their own training programs. Inductees are shown a film strip, *The Power of a Minute*, a morale-building film showing the fatal effect of delays along the production line. From time to time as combat films are released by the authorities, plant employees are invited to view these films that show so graphically the part the worker is playing in supporting our fighting men. A recent release. *The Birth of the B-29*, is now part of the program designed for inductees.

The Training Department has built up an extensive library of training and technical films and film strips concerning most phases of factory procedures, and has excellent sources for obtaining additional films. Complete bibliographies of film and film strips on any factory subject are available.

Supervisors are urged to take advantage of this training service as the need arises within their departments. The Education Department is equipped to handle a full-scale program of audio-visual training to assist in keeping the B-29 production on schedule.

Foremen and supervisors are invited to contact the Audio-Visual Division's advisory service for information on previews and bookings at Extension M-137 or Mail No. 39.



In the top picture, Marge Annis of the Audio-Visual staff at Martin-Nebraska, operates the movie projector showing a film for a trainees' riveting class. In the lower picture, a group of trainees in an Electrical class view the film, "Tips on Soldering."

★ ★ ★

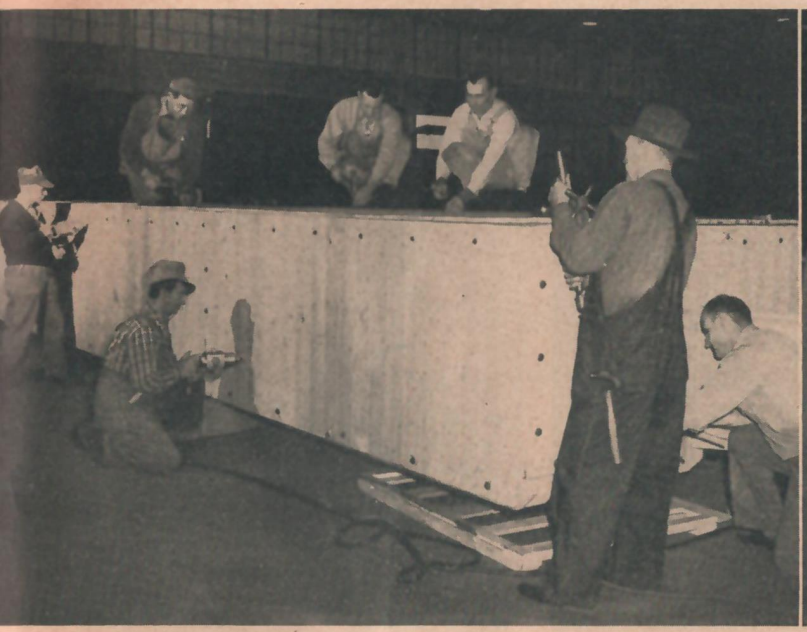
Handle Aviation Matters

Local commercial organizations (Chambers of Commerce, Boards of Trade) in at least ten large cities have to date established separate departments of aviation.

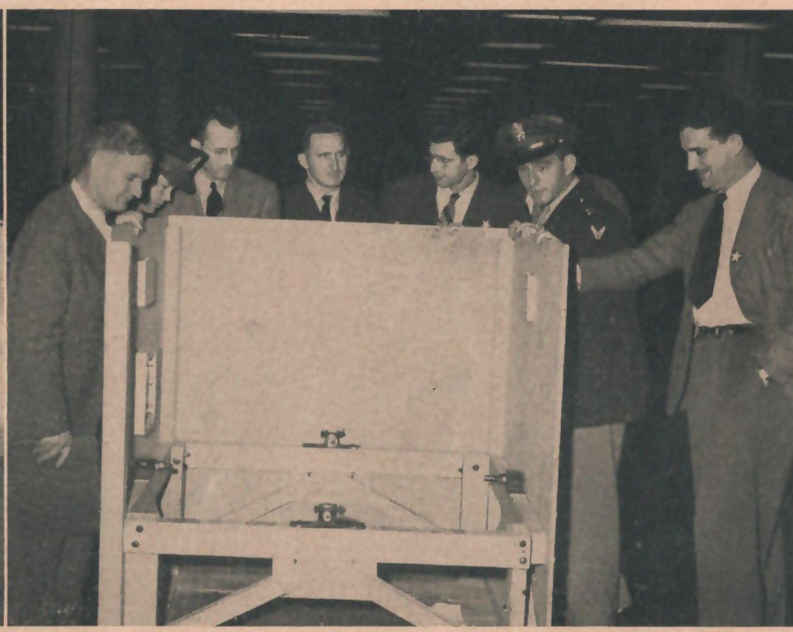
These municipalities include Fort Worth, Kansas City, Los Angeles, Milwaukee, New Orleans, New York, St. Louis, San Francisco, Seattle and Wichita.

Beginning construction of an overseas export box which will be used for shipping spare B-29 wing flaps are Lee Saunders, left, and Harry Kingsley, right, both Wood Shop employees.

Ike Phalen, left, and James O'Connor, both in Wood Shop, add water-proof lining paper to an overseas export box. Every box built at the Plant for overseas shipping is lined with the water-proof paper.



Finishing a box for wing flaps are, from left to right on top of the box; Julius Phifer, L. Y. Browning, and Lloyd Dunn; on the floor are: Clyde Ragon, Jess Taylor, Charles Chambers, and Ike Phalen.



A group of Army personnel and men from the Forest Product Laboratories in Madison, Wisconsin inspect one of the newly-designed export boxes for shipping vital B-29 parts in the Martin-Nebraska Wood Shop.

B-29 Overseas Boxes Built In Wood Shop

For every B-29 that rolls out the Martin-Nebraska bay doors, a required number of spare parts is shipped by the Company each month. Part of the work in Martin-Nebraska's Wood Shop department is to build the export boxes in which these spare parts are shipped. Among the larger-sized export boxes the department builds are those for shipping B-29 wing flaps, bomb bay doors, both the main and front landing gears, nose assemblies and oil coolers.

The spare parts are sent from the Company to Army depots, and from there they are forwarded to areas in which they are needed—the overseas fighting areas where damaged planes can be easily repaired without delay.

After each of the overseas export boxes is built, it is lined with a special water-proof paper. This factor aids in assuring that the spare parts will arrive at their destinations in perfect condition.

Recently, a group of men from the Forest Products Laboratories in Madison, Wisconsin, visited the plant to inspect the shipping of spare parts. They were especially interested in one new overseas export box for shipping a vital B-29 part—the box was designed by the company's Tool Design department and then constructed by the Wood Shop department.

Air Courses Planned

At least fifteen New York City high schools have inaugurated two-year basic courses in the fundamentals of flying. The courses are sponsored by the Greater New York Cadet Training Group of the Civil Air Patrol and were established after an experimental course last spring proved successful. Organized into cadet units, the aviation course is designed to prepare young men and women for the Air Forces and for the postwar increase in civilian flying.

Subjects to be studied include aircraft identification, morse code, air navigation, meteorology, and theory of flight.

Portrait Of Glenn L. Martin Painted By Soldier Martineer

Pvt. Russell Fatsinger's Portrait of Glenn L. Martin.

A former Martineer, Pvt. Russell Fatsinger, has just completed and sent to Glenn L. Martin an oil portrait of the Company's President and the first in a series of prominent Baltimoreans the serviceman is hoping to make in his spare time at Ft. McClellan, Ala.

Entering the employ of the Martin Company in 1938, the soldier-artist was a helper in the Paint Shop, working his way up to leader in the Paint Shop at Canton at the time of his induction into the Army in 1943. His father, formerly in the painting and decorating business in Allentown, Pa., is in Tool Design, Army Division.

It was from artists and painters employed in his father's business that young Fatsinger learned to paint and for 13 years has been working at his chosen pastime, which he hopes some day to become a vocation.

Pvt. Fatsinger, with the 7th Regiment at Fort McClellan, is painting murals on one of the orientation hall walls, a job which has earned for himself and two other soldiers the personal compliments of Brig. Gen. Fuller, executive officer.

Pvt. Fatsinger

He hopes to return to Baltimore after the war and further his career as a portrait painter.

Scotch Lassie Wins B-26 Beauty Contest

Molly MacArthur, a brown-haired Scottish lass with a magical name, won the first beauty contest ever held by American fliers and ground crewmen in the European Theater, and became the "Lilli Marlene" of the Silver Streaks, a Marauder Group.

Molly, who comes from Glasgow, is a WAAF corporal and truck driver. She was chosen from 200 girls, representing three British women's services and civilians in the contest, inspired by the famous war song of the same name.

She is 23, single and five feet seven inches tall. She admires Greer Garson, but has a low opinion of Frank Sinatra. In the service three years, she has never experienced anything so exciting as winning a beauty contest before.

Unlike other British girls, who have a ready opinion of American soldiers, Molly frankly admits she didn't know much about them—yet. She thinks American drivers are too fast—always in a desperate hurry.

Never did a beauty contest winner face a more critical battery of judges. She was selected from among four finalists by

MOLLY MacARTHUR

four first sergeants, two master sergeants, one technical sergeant and one buck sergeant. And the boys pulled no punches.

A la Hollywood, an engraved silver loving cup was presented to Molly. She was dated up immediately for publicity pictures and interviews. She christened a Marauder "Lilli Marlene" for a combat crew headed by Capt. Elden Z. Shimmin, of Patterson, Calif., who flies in Col. Reginald Vance's Silver Streaks Group.

And then back to work went Molly, who can drive anything "up to three tons."

★ ★ ★

A New Record

American aircraft have flown 13 million hours and consumed two billion gallons of high-octane gasoline in military operations since Pearl Harbor.

Mariner Cripples Jap Carrier In Celebes Sea

A recent news dispatch from an advance seaplane base at Leyte revealed another instance of the tremendous job the Martin-built PBM Mariners are playing in the Naval War of the South Pacific. The news story, written by Spencer Davis, of the Associated Press, reported the crippling, singled-handed, of one of Japan's biggest carriers by a Mariner.

According to the correspondent, Lieut. James D. Fallon, of New Haven, Conn., while searching the seas south of Celebes, spotted a carrier of the formidable Shokaku class while on a night patrol. The broad luminous wake of the carrier was a dead give-away. Ignoring the odds against him, Lt. Fallon swung his "Nightmare" astern of the carrier and swept in for a bombing run.

The unnamed carrier swung violently and opened up with all her guns. Fallon said: "They were throwing everything at us but the Jap skipper's teeth."

The first 500 pound bomb fell short of its mark, but the second hit at the water line while the third hit squarely on the flight deck. The fourth went over the flattop and exploded in the water a short distance away.

Then came the biggest surprise of all to Fallon. He expected a furious antiaircraft shower as the "Nightmare" swung away from its target, but all firing suddenly ceased. Anxious to see what damage his bombs had done the pilot shadowed the carrier for two hours and saw that the ship's speed had decreased sharply and it was obviously in trouble, although there were no fires.

Fallon finally was obliged to break off and return to his base. The "Nightmare" settled down just as the engines coughed and stopped for lack of gasoline.

Leeman's Demons

(*Continued from page 7*)

tenant John F. Schrefer, U.S.N., Cocoa, Florida, had a narrow escape over Ponape when an antiaircraft shell blasted through the tail of the Mariner as he made a run on a 7,000-ton Jap freighter. The tail-gunner, William B. Pierce, Aviation Machinist's Mate, First Class,

Comm. Leeman

Lt. Hunt

U.S.N.R., Weymouth, Massachusetts, was knocked unconscious by the explosion but recovered in time to man his guns and strafe the enemy vessel with .50-caliber machine gun fire.

Lieutenant Schrefer piloted the Mariner in which Secretary of the Navy Forrestal visited the combat area last September.

The squadron pilots and crewmen attribute much of VPB-202's success to their skipper. "Commander Leeman not only did everything he asked us to," they chorused, "but he did it first."

One former Martineer is listed as a member of VPB 202—Robert Preston Shallcross, who formerly worked in Body. He is an Aviation Machinists Mate, Third Class, and his home is at Rock Hall, Md.

THE Martin GIRL

JANUARY

Another year—and I resolve
To work hard at my job,
So we can get the war o'er quick
And I'll get back my gob.

Less Trouble With B-26, Says Girl Ground Tester

"The B-26 gives us less trouble than any other type of plane," says Mrs. Ruth J. Brown, who has flight checked and made general run-ups on twelve different types of ships.

Mrs. Brown formerly was employed by the Martin Company, and was selected by E. R. Swint, Assistant Director of Education, as the first girl to enter ground test training. She later became chief of the first all-girl ground test crew here. Mrs. Brown is now making flight checks at Morrison Field, Airplane Branch, West Palm Beach, Fla.

B-26 "Top Sarge" Tough As Namesake

For 130 miles seven men watched and waited wondering whether the B-26's right wing would collapse and send the Marauder, "Top Sarge," to its death.

But "Top Sarge," with part of its right wing gone and the remainder sagging dangerously, brought them in for a safe belly landing on a landing field near the Channel.

With Major Glenn Grau, squadron leader from Brookville, Ohio, at the controls, "Top Sarge" had just completed its bomb run in France and the men were congratulating themselves on good bombing, when the first flak barrage hit.

That was just a teaser, for it skyrocketed through the plane between the pilot and bombardier. The second blast peeled off the paint from the right side of the ship, killed the right engine, knocked out the controls for the electrical system, ailerons and rudder, blew off the right nacelle and tore five feet off the wing, including the flaps.

It killed two of the nine-man crew the Marauder was carrying.

"It felt as though someone had picked me up by the seat of the pants and tossed me 100 feet in the air," Major Grau quipped.

"Top Sarge" shuddered, took a rocking-horse gait for a short time and then settled down as Grau worked with what controls he had left. Over the North Sea, the Marauder was losing altitude steadily because of a windmilling prop. Major Grau kept his speed at 179 for fear of vibrations shaking off the wing.

Lt. Richard Abrams, copilot from Bellingham, Wash., went aft, straightened the humped skin with his bare hands and made a shift splice near the rudder control break. Another Marauder came alongside and signalled "don't lower your landing gear or flaps." "I knew that warning meant my crippled plane was in worse shape than we imagined," Major Grau said.

"Top Sarge" chugged along past a convoy, just over a beach, ten feet over trees and onto an emergency field and made a perfect belly landing. Home again for the sixty-fourth time.

THIS MONTH'S COVER

The white PBM Mariner pictured on the front cover this month is one of the many being flown by the Naval Air Transport Service to all parts of the world, carrying supplies, mail and men. It is pictured taking off from the waters of the Chesapeake Bay and was caught in Kodachrome by staff photographer Charles Cignatta.

The back cover should be of interest to every Martineer, as it shows how the interior of a B-26 Marauder would look if the outer skin were peeled back. While all of the parts are not identified, the principal ones can be readily located.

The girls in Accounting, first and second shifts, Fallsway, receive many papers stapled together. They have been prying off the tiny metal staples and saving them, and at frequent intervals the girls have turned in these staples to the plant for scrap metal. The donations of staples which the girls have made, have averaged 15 pounds of metal a month, which is a worthwhile bit of conservation. Picture shows a pile of staples on a table, surrounded by Georgia Williams, Ruth Hamilton, Mabel Carter, Madeline Horner (first shift) and Sadie Williams (second shift).

Ten-Year Advance Made In 3 Years

American aeronautical technology—our key to Air Power—has advanced ten years in the space of three under the impetus of competition with well-prepared and alert enemies. Today's hot-flying fighters, hard-hitting bombers and super-transports are not the same planes as their pre-war predecessors by the same name. Many of these advances have been the result of research and experiment at The Glenn L. Martin Company, which has made its findings available to the industry.

Aerodynamic refinements, with new shapes for wings, fuselage and tail surfaces has reduced drag, increased speed. One new profile reduced wing drag as much as all previous research since the Wright brothers flight in 1903.

Continuing concentrated research seeks to overcome effects of compressibility, a new problem encountered at extreme speeds at which shock waves upset normal plane behavior. A new wing flap indicates some help toward a solution. Our aircraft engines today are more powerful, have longer service life, are more reliable than ever before because of improved cylinders, better fuels, lubricants and extensive research on supercharging. The weight per combat horsepower has been reduced about 40 per cent.

New Burst of Speed

New type cylinder fins for one radial engine, achieved better cooling, permitted greater power utilization. A system of injecting water into cylinders of high-speed fighters has given pilots an extra burst of speed in combat.

A new engine cooling fan has resulted in a 20 per cent increase in climb rate.

Propellers, too, have been improved. New wide, or "paddle" blades, have added to climb of several fighters. Faster takeoffs and higher speeds also have come with improvements in blade profiles.

Contra-rotating propellers promise increased horsepower absorption and better flight control for several new experimental fighters.

★ ★ ★

Foundation

(*Continued from page* 5)

"So far as I can see there are no legal technicalities standing in the way of the gift or the development along the lines suggested; but if any develop, I am sure the Legislature, always friendly to the university, and, most assuredly, I will be glad to co-operate to straighten them out.

"I have already advised Mr. Martin of my personal and official appreciation of the gift, and speaking for the people of the State, I can confidently say that this action will be received with great approbation and pleasure. This gift, of course, strikes a very responsive chord in all of us who are alumni of the university."

The gift was formally accepted by the board of regents of the university on Friday, December 15.

P.S. She Gets the Job

Like a lot of other patriotic women and girls, Lena goes to the downtown Employment office on East Fayette Street seeking a job. In the window, Albina Pokorny, Army Division, is showing passersby one of the many types of work open to women.

TO recently employed Martineers, these pictures will be familiar, but to old-timers around the plant, today's routine of hiring is considerably different than it was in yesteryear. Just to keep everybody up-to-date on what goes on, a Star photographer took these pictures of Lena Luttrell, of Shinnston, West Virginia, going through the steps necessary to becoming a Martineer.

She is interviewed by T. J. Cummings, who gives her complete information about the work, hours, pay and other privileges of a Martineer.

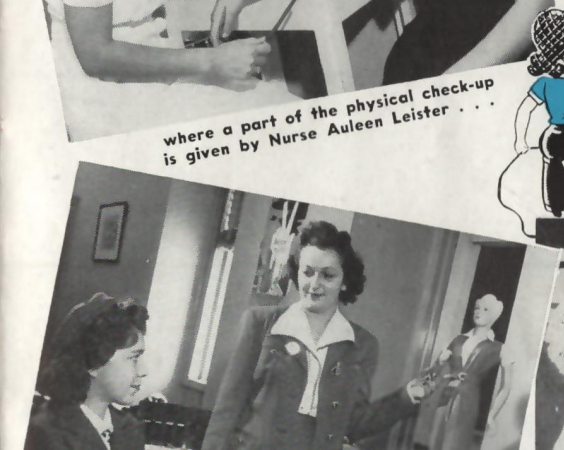
With others who have likewise been employed, Lena awaits transportation to the Middle River plant for the final steps.

The bus pulls up in front of the Personnel Building and Lena goes inside . . .

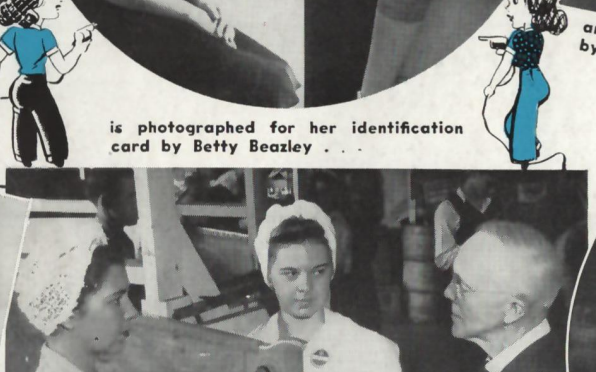
where a part of the physical check-up is given by Nurse Auleen Leister . . .

is photographed for her identification card by Betty Beazley . . .

and fingerprinted by Ethel Leary.



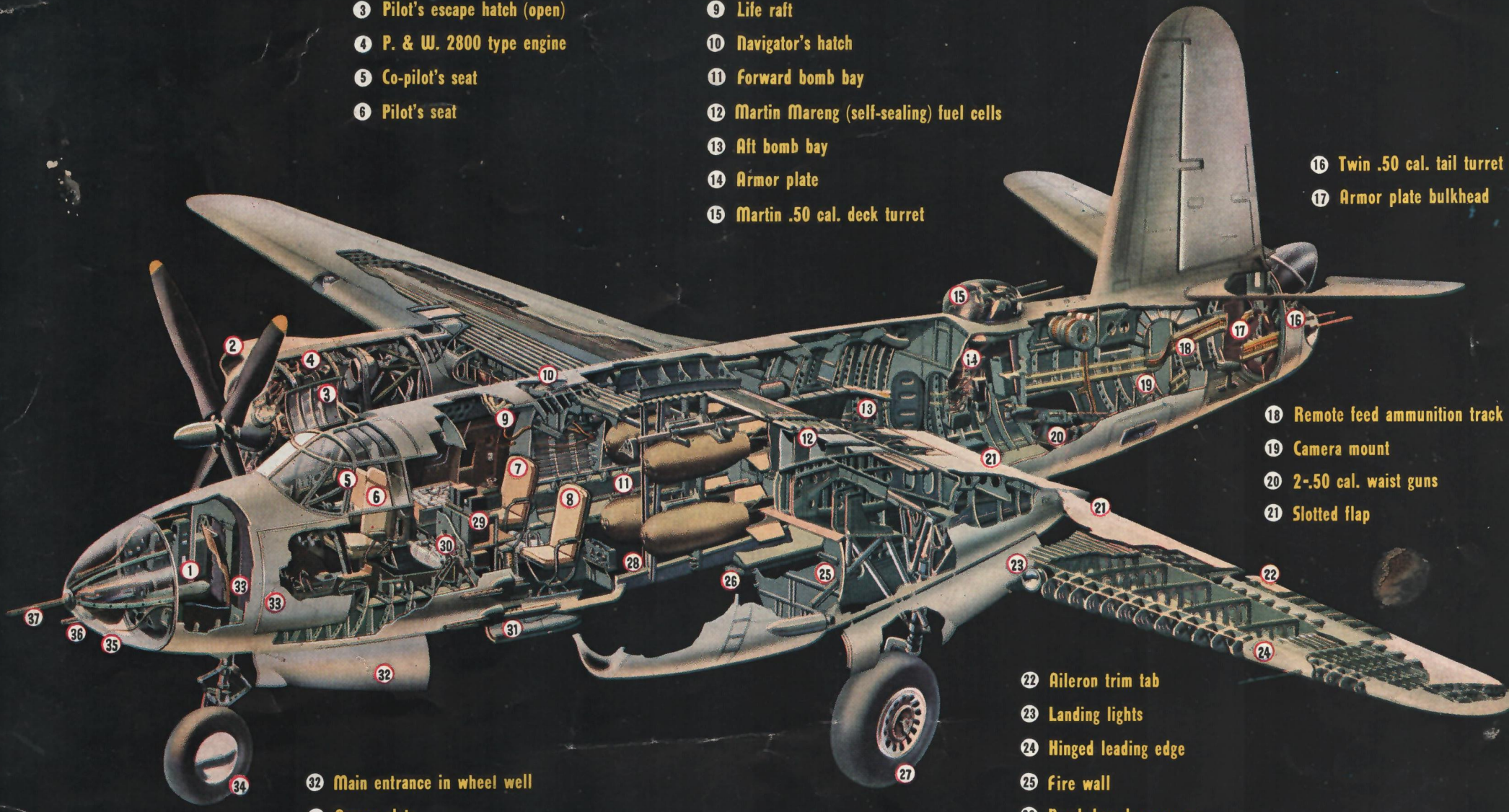
So she can work safely, yet be comfortable and stylish, Edith Hurley tells Lena about dress requirements.



With another new employee, Elaine Engles, Lena goes to school to learn her trade. Her teacher is Willard Hammond.

At last! School over, Lena joins the thousands of other women on the production line, helping build PBM Mariners in B Building Assembly.

wiegand



1. Bombardier's station
2. Carburetor air intake
3. Pilot's escape hatch (open)
4. P. & W. 2800 type engine
5. Co-pilot's seat
6. Pilot's seat
7. Navigator's seat
8. Radio operator's seat
9. Life raft
10. Navigator's hatch
11. Forward bomb bay
12. Martin Mareng (self-sealing) fuel cells
13. Aft bomb bay
14. Armor plate
15. Martin .50 cal. deck turret
16. Twin .50 cal. tail turret
17. Armor plate bulkhead
18. Remote feed ammunition track
19. Camera mount
20. 2-.50 cal. waist guns
21. Slotted flap
22. Aileron trim tab
23. Landing lights
24. Hinged leading edge
25. Fire wall
26. Bomb bay doors open
27. 47" main wheel
28. Catwalk through bomb bay
29. Radio equipment
30. Oxygen supply
31. Package guns (4-.50 cal.)
32. Main entrance in wheel well
33. Armor plate
34. 36" nose wheel
35. Bomb sight window
36. Fixed .50 cal. gun
37. .50 cal. flexible nose gun

The Martin B-26 Marauder